Toward integrated medical resource policies for Canada: 9. Postgraduate training and specialty certification

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This is the ninth in a series of articles[1-8] based on the report *Toward Integrated Medical Resource Policies for Canada*,* prepared for the Federal/Provincial/Territorial Conference of Deputy Ministers of Health.[9-11] In it we summarize the key concerns and policy avenues relating to the postgraduate training of physicians. Although we touch briefly on family practice programs and the proposed 2-year prelicensure requirement we focus primarily on the training that leads to specialty certification by the Royal College of Physicians and Surgeons of Canada (RCPSC), because this aspect was identified by our interviewees and in the literature as being most in need of policy reform. (The discussion and policy movement that have occurred in this area since our interviews are encouraging but as yet leave the main problems unsolved.)

We identified a total of five fundamental problems: (a) the number of postgraduate residency training positions exceeds the number needed to train current Canadian medical undergraduates, (b) the allocation of residency positions across specialties is not determined by or aligned with the relative need for the various specialties, (c) the organization of the training programs is inefficient, (d) the funding of and the clinical service provision by residents are organizationally and educationally irrational and likely inefficient from a broader "opportunity-cost" perspective and (e) the training of at least some graduates, even in the ostensibly generalist specialties, does not encourage them to practise far from urban tertiary care centres.

Given the desired ratio of general and family practitioners to specialists, and the important distinction between educational needs and service provision, there is an excess of funded residency positions in Canada. (We do not mean to play down the problem of shortages in some specialties in which the number of current residency training positions will not rectify those shortages.) If we assume that there are roughly 1700 medical graduates annually, that about half should proceed to programs leading to certification by the RCPSC and that each will on average require 4.5 years beyond the initial prelicensure year, then about 3825 such residency positions (not including those in family practice) are required to meet Canadian training needs. This is far fewer than the approximately 4800 positions† now funded by the provincial ministries of health alone.[12]

Furthermore, the number of positions funded by sources other than the ministries is not only significant (increasing the total by almost 20%[12]) but also growing rapidly.[13] Thus, an important factor in the excess of residency positions is the apparent lack of

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†The Canadian Post-M.D. Education Registry (CAPER) reported 6525 positions funded by provincial ministries of health in 1990-91.[12] Assuming that 1700 positions are required for the first year of postgraduate training, this leaves about 4800 positions.

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coordination and control of funding sources.

The problem is exacerbated by the serious misalignment of specialty training *mix* with the areas of practice surplus and shortage.[14-16] Program size and prestige, service provision by residents, the influence of clinical program directors and department heads, and historical inertia appear to carry far more weight in the allocation process than do issues of future community needs.[17]

The inappropriate mix of specialty postgraduate positions arises in part from the third fundamental problem: the inefficient national organization of training programs. Each academic medical centre tends to establish training programs in as many of the 50 or so specialty areas as it can, and there are thus too many programs, some of which are too small to be efficient. Although we recognize that programs in the core primary and some secondary specialties are indispensable we found widespread agreement that many other training programs could easily be rationalized through the development of regional centres of excellence or even through shared training capacity among institutions.

There may be compelling reasons, for example, for maintaining five residency training programs in rheumatology in Ontario, five in pediatric infectious diseases in the country (training seven residents) or four rheumatology programs in the western provinces (training eight residents).[12] But the reasons are not obvious, and these figures are not isolated examples.

Not all programs can be of equivalent educational quality, and the present number and distribution of programs may offer some educational experiences that are suboptimal. This type of educational inefficiency has perhaps the greatest long-term impact, since it may affect practice patterns and the quality of care provided by graduates.

Finally, the location and specialty mix of programs may influence graduates to choose practice locations that are at odds with population needs.[8] If residency programs were less dominated by urban, tertiary care training centres graduates would be less likely to practise in such settings.

The fourth fundamental problem is the irrational funding of postgraduate positions. Many (if not all) ministries of health appear to be paying twice for many services provided by residents: residents receive a stipend from the ministry on the grounds that their training involves the provision of clinical services to patients,[18] and yet their clinical supervisors bill provincial medical plans for the same services. This has several unfortunate side effects: (a) the clinical earnings of supervisors (at least in some academic health centres) significantly influence decisions about the specialty mix in clinical teaching units, (b) the number and mix of clinical services that residents often provide are not those that would best meet their educational needs and (c) the importance of "practice-plan" income to some academic medical centres tends to skew their activities away from research and teaching and toward service provision.[5,6,19]

In addition, there is a multitude of funding sources. There may be good reasons for funding many positions other than through ministries of health, but the present multiplicity of sources contributes substantially to the lack of control and coordination of the overall number of positions and their location, purpose and specialty mix. Some positions may be established for reasons unrelated to education and without any regard for the broader issues of overall training requirements. No one with whom we spoke appeared to have a firm grasp of who was funding which positions and for what purposes.

The fifth and final problem is the curriculum or clinical exposures provided to residents. This has been commented on by Lewis and Sheps:[20]

> The major problem in the quality and effectiveness of medical education stems from the mismatch between the health needs of the public and what is concentrated upon, demonstrated and taught in our academic medical centers. The educational program is dominated by the choices made in research and patient care, which reflect the interests of the many specialized individuals and groups that make up the faculty. Though each of these choices has some relevance to health and disease, when taken together, they rarely match the health needs of the population as a whole. Geriatrics and alcoholism, for example, present massive problems which get little, if any, attention in the academic medical center. The emphasis is on acute and unusual conditions, leaving chronic disease grossly neglected. The focus is generally on the unusual rather than the common problems. Prevention and rehabilitation are given lip service. Tertiary care is preferred over primary care. The patient in bed is deemed to be more interesting than the one who is ambulatory. The patients in the teaching hospital, where student experience is concentrated, represent a tiny fraction, less than 1 percent, of the total number of patients who seek medical care at any point in time. How can this experience be thought to prepare students adequately for medical practice?

Our observations indicate that this almost decade-old US description is an accurate reflection of the problem in Canada now. In the face of stable or slowly increasing numbers of funded residency positions the proliferation of subspecialty programs inevitably siphons off residents from core programs, and "it becomes more likely that trainees will be assigned to roles of little direct relevance to their education."[13]

Causes of postgraduate training problems

The causes are not obvious. Perhaps the single most important one is the absence of control and coordination of the total complement of funded positions and their allocation across specialties and training sites. Even a cursory look at the statistics provided by CAPER[12] reveals numerous examples of duplication and of small programs.

However, there is a deeper issue. The need for control and coordination seems widely acknowledged and appreciated; thus, their virtual absence must be attributed to a failure of political will, at two levels. First, despite the ample opportunity for coordination in some provinces no agency has stepped in to take a leadership role (although the Council of Faculties of Medicine in Ontario is trying). Second, at the time of our report there had been few serious attempts to develop interprovincial arrangements.*

This same lack of political will underlies the misalignment of the mix of funded positions with population needs. Provincial ministries have always been keenly interested in the overall numbers of positions they fund but apparently not in their specialty mix. As one senior ministry official noted, "We know it's a problem, and we know it's a problem about which we could do something. Somehow it never seems to be quite important enough amidst the competing political and fiscal priorities." Certainly, medical educators have no interest in seeing governments involved in the "micromanage[ment of] postgraduate training."[19]

There is ample evidence of similar problems at individual institutions. As Maudsley[13] noted, "in many programs the issue is not too few trainees but, rather, too many CTUs [clinical teaching units]." The causes are pressures from clinical teaching units and potential clinical supervisors who would stand to benefit personally from the establishment of programs and affiliations.[13] This conflict between the service needs of teaching units and the educational needs of a mix of residents that matches population requirements should be resolved in favour of the educational interests (legitimate service needs being met through other means).

Of course, it is not always (or ever) that easy. For example, a province's subspecialty service needs may be met only through the offer of an academic affiliation and a residency program during recruitment. To meet such needs a province may end up training people it has no use for.

However, clinical teaching units have many partners in this "crime." Affiliations with teaching units are developed in conjunction with the development of new programs. The insatiable thirst of academic medical centres for ever more subspecialty programs (with the prestige and practice-plan income they may represent) and their relative disregard for primary care and core specialty programs[21] must be critically analysed.[22] The role of the RCPSC in this program proliferation appears to be a related underlying cause: the college not only recognizes new certificated specialties but also sets standards for and accredits the new training programs that produce the certificants. Each new certificated specialty appears to pressure all deans of medical schools to establish a program in that specialty;† this in turn pressures the funding sources (ministries of health).

One cause of some of the fundamental curricular problems is that academic medical centres tend to attract subspecialists, because these people have the interests and skills needed for the types of clinical research that receive the greatest academic kudos. Unfortunately, the influence of such subspecialists extends well beyond their research publications: they represent the educational milieu, the professional ethos and the mix of available clinical exposures — pervasive influences that affect student demands for particular residency programs, subsequent decisions about practice location and style, and perspectives on the broader context of medical practice.

Family practice training

Some of the problems we have outlined apply equally to the training that leads to certification by the College of Family Physicians of Canada (CFPC) or to licensure in general practice. For example, the number of funded postgraduate positions should be consistent with undergraduate enrolment and the desired ratio of family to specialist practitioners. Similarly, the educational sites and curricular exposures need to be more closely aligned with the mix of clinical problems and support services that graduates will face if they are to meet the most pressing needs of the population. For example, it is difficult enough to encourage graduates to establish rural lives and practices, and if they feel unprepared to meet the professional challenges in such situations they will be even less inclined to establish nonurban practices.

Several academic centres have made progress in aligning their training environments more closely with eventual practice settings and in providing

This is a situation begging for a national strategy; individual provincial initiatives might impede the development of such a strategy.

†*This is not to say that the role of the RCPSC is inappropriate but, rather, that there should be a broader set of considerations in the recognition and accreditation processes. This problem appears to have been recognized by the RCPSC, and steps are being proposed that may improve the situation.*[23]

clinical exposure to usually underemphasized but important areas such as chronic care, postoperative care, mental health and geriatrics. Sufficient progress is not yet being made everywhere, however. The ethos of most academic medical centres, in which family practice programs must compete for resources and attention, continues to promote procedure-based and technologically oriented medicine that can be readily compartmentalized into subspecialties. Such an ethos de-emphasizes clinical judgement (as distinguished from technical skill) and continues to favour training within academic tertiary or quaternary care institutions.*

Policy directions

Postgraduate training requirements for licensure

The apparently imminent shift from a 1-year to a 2-year prelicensure requirement affords an opportunity to hasten the necessary reforms in this critical area. It provides the potential not only to reverse some of the more perverse incentives and irrational mixes of clinical exposure in prelicensure training but also to begin a fundamental rebuilding of the ethos of medical training. The extra prelicensure year should be used to ensure that postgraduates receive significant exposure in areas of need (e.g., chronic care and rural area practice) rather than to provide more specialization opportunities.

The importance of consistency across provinces and territories in how this new training requirement is incorporated cannot be overemphasized. Failure to agree on this fundamental point would call into question the feasibility of any national strategy on physician resource policy. Inconsistent provincial standards are likely to induce interprovincial flows of trainees that may adversely affect attempts to improve the geographic distribution of physicians.

Number of training positions for RCPSC certification

We proceed from the fundamental premise that instruments ought to align with targets. Because residency training is intended primarily as the instrument by which to complete the education of Canada's future medical specialists, the number of funded residency positions for these educational purposes should be largely determined according to three considerations: the number of graduates of undergraduate training programs, the desired ratio of general or family practitioners to specialists and the length of postgraduate training required for each specialty. As noted, the current complement of positions funded by the ministries of health alone is much greater than these criteria would imply.† Furthermore, if our recommendation on undergraduate enrolment[7] is adopted, even with the compulsory 2-year prelicensure requirement the number of positions presently funded by the ministries of health collectively will exceed the number required for educational purposes.

Thus, we recommend that the overall number of funded residency positions for graduates of Canadian medical schools be brought into line with the number of positions required for the completion of their training. Assuming adoption of the 2-year prelicensure training requirement by all provinces, a first-year undergraduate class of 1600, an attrition rate of 3% during undergraduate training, a 50:50 split into those undertaking 2 years of prelicensure training and those going on for RCPSC specialty certification (with an average training period of 5.5 years), the number of positions required for specialty training (beyond the first year) is about 3500 (776×4.5). The number currently funded by provincial ministries of health alone is about 4500.[12]

An additional 1600 positions (allowing some room for upgrading and a third year for a small proportion of trainees) would be needed for those completing the 2-year family practice requirement and 776 for the first postgraduate year of those proceeding to RCPSC certification. However, this totals less than 5900 positions — about 10% less than the current 6500, even though the universal 2-year prelicensure requirement (built into this calculation) is not yet in place.

Although crude, the estimate of 5900 is based on a conservative set of assumptions. Our interviews revealed nothing to suggest that adjustments to these assumptions, within likely ranges, would alter the conclusion that provincial ministries of health fund about 10% more positions than can be justified by the Canadian educational requirements.

**We do not wish to imply that graduates proceeding to general licensure or family practice certification should receive* no *exposure to tertiary care environments and problems. After all, that is the only way they can receive exposure to the less common events that may occasionally cross their paths. Rather, we are arguing for a significant rebalancing of exposures so that clinicians who will not be in tertiary or quaternary care environments will have the communication skills, composure, familiarity, confidence and clinical judgement necessary to function effectively in primary and secondary care settings.*

†We disagree with the RCPSC's view that "[modest] overall increases in the number of posts in the last four years" (1987 to 1990) implies that "means have been found in most provinces to rationalize residency positions."[24] Undergraduate enrolment peaked in 1984, and since the number of postgraduate positions at that time was far more than was needed for training, it seems to us that the continued increase in the number of residency positions suggests precisely the opposite: that no means *have yet been found for rationalizing the number of residency positions.*

There are, however, two important corollaries of our recommendation to reduce funded positions by 10%. First, the *needed* clinical services presently provided by residents but not essential to their training must be provided by some other configuration of health care personnel. Second, the reductions in funded residency positions must be phased in, so that they do not disrupt the training of medical students and residents already in programs.

With respect to the first corollary, we should not assume without critical examination that the most efficient way of providing service in clinical teaching units is through the use of residents and their supervisors. The clinical exposures necessary to the education of residents as distinct from the clinical service provided by residents will vary by specialty and training site, but such a separation is a necessary component of the process of realigning training positions with training needs. Although we recognize the practical problems of separating education from service and understand that all clinical training will have some service benefits, it became clear to us through interviews and our review of the literature that residents provide substantial amounts of service that have absolutely no educational content or purpose.[25]

The success of attempts to rationalize the number and mix of residency positions rests on this fundamental realignment of means and ends. Not only is much postgraduate training devoted to the provision of clinical service, but also a large part of this service is provided by foreign medical graduates, recruited specifically to fill postgraduate positions for the purpose of providing service. These then become unplanned and often unneeded additions to physician supply.[4]

Service needs left unsatisfied as a result of this rationalization will need to be met through some combination of alternative delivery models. No single preferred option seemed obvious to us, and we offered a number of relatively detailed possibilities in our full report.[10]

Finally, our calculations of the number of funded positions necessary for educational purposes do not attempt to adjust for future changes in lengths of residency programs. In light of residents' apparently extensive provision of service not related to educational needs we suggest that initiatives to increase the length of accredited programs be seriously examined. Such decisions must be made collaboratively by the RCPSC, the training institutions and the ministries of health.

Specialty mix and location of residency training positions

In his 1973 address to the Association of American Medical Colleges John Evans observed that "the output of specialists of a given type seems to relate more closely to the prestige of the specialty and the momentum of the residency training program than to the need for its products."[26] Our information suggests that little has changed.

There seem to be two key issues for policymakers and education stakeholders about the mix of residency positions: (a) the development and maintenance of information systems that will provide a more reasoned structure on which to base the national mix of training positions and (b) the development of organizational mechanisms for converting the information into adjustments in the mix of funded positions and training sites.

The same number and mix of specialists could be trained more efficiently by consolidating or coordinating programs across the country. The opportunity cost of not doing so may be significant. Maudsley[13] has noted the following:

> The absence of a subspecialty program in a given discipline does not imply that services are not provided to the community, that undergraduate education is not available, that there is no training for interns and residents in core programs or that active research cannot occur. Some subspecialty residency programs may need to be phased out to generate a sufficient number of residency positions to support core residency programs, family medicine programs and existing or new programs that capitalize on new areas of priority and strength within the medical school.

The development of a reasonable and acceptable approach to rationalizing the mix and location of residency positions hinges in part on restructuring the funding of academic medical centres[5] and in part on replacing the current institution-specific systems of bargaining among department heads, deans and residency program directors. New coordinating bodies (national or regional) are needed that would be responsible for overseeing all residency positions funded from all sources. (In this respect, the new National Coordinating Committee for Postgraduate Medical Training seems a promising step in the right direction.) Another need is for funding and allocation models that recognize the funding responsibilities of individual provinces. This process will depend on the development of better information, a topic we will take up in the next article.

Since part of the RCPSC's interest is in maintaining the highest possible level of educational quality it seems reasonable to expect the college to promote site amalgamation or interinstitutional collaborative program development to slow the proliferation of program sites. As part of its mandate the

national coordinating committee might identify opportunities for amalgamation; the RCPSC would then be responsible for helping the institutions develop joint programs that meet accreditation standards.

The whole process of rationalizing the mix and sites of specialty training will undoubtedly be fraught with complex practical problems. However, such a process is an important test of the *will* of the provinces and of stakeholders within them to develop a national strategy, for it is here (as much as anywhere) that the need appears obvious, solutions seem relatively clear, and collaboration, coordination and commitment will be necessary to meet that need.

Funding of postgraduate residency training

The emphasis on payment of postgraduates for service provision skews the training process. Stipends should be structured to be sensitive to "educational achievement and . . . active participation in sophisticated patient care"[19] rather than to service provision in tertiary care hospitals. The practice of having provincial medical plans pay fees to clinical supervisors for the same service as that provided by residents should be eliminated. Fee-for-service payment should be replaced by adequate non-fee payment to clinical supervisors *for their supervision.*[5]

With regard to funding sources it is probably not possible or desirable to move toward a single-source model (i.e., the ministries of health or their equivalent). However, a more detailed examination of the sources of funding for all positions, a source-by-source examination of the purposes of the positions and the development of policy initiatives to ensure the consistency of purposes, numbers and outcomes seem essential. (The full report[10] contains an extended discussion of specific situations in which such an examination would likely bear fruit.) Although this recommendation may smack of centralism, the problem of funding sources was seen as critical by virtually everyone interviewed who had a view on the subject.

Residency training curricula

The establishment of a number of accredited residency programs in general skills that are tailored to nonurban hospital settings — for example, general surgery with obstetric skills and general practice with skills in anesthesiology — seems warranted. Ministries of health might hasten this process by providing special developmental and evaluative funding (although in the long term the necessary positions would come from the reduced overall complement of residency positions). The preferred location of such programs would be the schools that have a proven record of producing clinicians willing and able to function in these areas of need. Such programs may be longer than most existing RCPSC-accredited programs, because one would be attempting to train specialists with a broader set of highly developed clinical skills.

As well, there is scope for collaboration between the RCPSC, the CFPC and the Medical Council of Canada to set examinations and to accredit certain programs, which would ensure the preparation of certificants who are able to provide care in the settings where care is most needed. If incentives are required to bring the postgraduate training curricula along, an effective way would be to design examinations that weed out graduates of programs that do not adequately prepare them for these settings.

At present some students may select subspecialties because they believe that they require the command of a more circumscribed body of knowledge than that needed for general practice or a general specialty. The continuing development by the profession of "clinical guidelines" based on evidence of effectiveness and cost-effectiveness as well as computerized clinical databases may reduce the pressure for subspecialization, because both of these initiatives will assist with the management and application of an ever-increasing body of clinical knowledge. However, such initiatives will require a substantial increase in the number of people with the clinical training to develop the guidelines and to promote their integration into everyday practice. This points back to our discussion in an earlier article of a key emerging role for academic medical centres.[5]

Conclusion

This discussion highlights the complexity and the urgency of problems in postgraduate medical training and of the need to craft new policy avenues. The policy suggestions described here involve a wide variety of stakeholders and require careful integration with the initiatives described in earlier articles. Some of the suggestions will be assisted by a more comprehensive body of information than currently exists. This is one of the topics addressed in our next article.

We are grateful to the many people who provided personal insights into this policy area during our interviews.

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